Models as the Basis for Visual Representation

- “realistic” 3D visualisation
- “insight” at high abstraction level
- link visualisation to model
  1. structure
  2. entity attributes
Categories of Simulation Animation Implementation

- Animation using a post-processor
- Direct simulation animation
  - integrated program (one thread)
  - cooperating programs (multiple threads, observer pattern)
- Visual Interactive Simulation: user in the loop
  - interrupt, modify (parameters, IC, ...), re-start
  - discrete event: statistical relevance?
  - discrete event: transient behaviour
  - need to keep track of modifications
    (generate script logging modifications)
Technical Problems of Simulation Animation

- Transformation of time for animation: non-equidistant, speedup/slowdown
- Suspension of animation on multi-tasking systems: buffer
Real Time Simulation

- Real Time
- "analytical"
- faster than Real Time
- slower than Real Time

virtual time

wall clock time
Specification

1. Simulation (event, possibly parametrized) trace
2. Graphical objects
3. Mapping table: event $\rightarrow$ graphical object methods
4. Speedup
Cashier/Queue Animation
Real Time Deadlines:
Rate Monotonic Scheduling (RMS)